

New records of the Levantine endemic cichlid *Tristramella simonis* from Syria

by

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RÉSUMÉ. - Nouvelle capture en Syrie du cichlidé, *Tristramella simonis*, endémique de la région du Levant.

Le genre *Tristramella* (Cichlidae) est connu des lacs de Tibériade, Muzarib et Hula du bassin de la rivière Jourdain et des lacs à l'est de Damas. De nouvelles études de terrain ont révélé que *Tristramella simonis* (Günther, 1864) présente une plus large répartition dans la partie supérieure du bassin du Jourdain et est bien établi dans l'Oronte et le Nahr al Kabir (N), en Syrie.

Keywords. - Cichlidae - *Tristramella simonis* - Syria - Levant - Biogeography- New record.

The freshwater fish research in the Levante has been pioneered by Valenciennes (Cuvier and Valenciennes, 1842) and advanced by Heckel (1843), Goren (1974), Krupp (1985) and others. The cichlids of this area have been revised by Trewavas (1942) and Krupp and Schneider (1989) who recognized seven native species. While four of these species, *Sarotherodon galilaeus*, *Oreochromis aureus*, *O. niloticus* and *Tilapia zillii*, are widespread in Africa (Trewavas, 1983), three species are endemic to the Levant: *Haplochromis flavijosephi* and two species of the genus *Tristramella*, *T. simonis* and *T. sacra*. The species diversity of *Tristramella* is still poorly studied and between two and four species or subspecies are recognized (Krupp and Schneider, 1989; Snoeks and Teugels, 1991; Crivelli, 2006). The biology, biochemistry and cytology of these species were studied in detail by Ben-Tuvia (1959) and Kornfield *et al.* (1979). Krupp (1985) already reported the introduction of *Sarotherodon galilaeus*, *Oreochromis aureus* and *Tilapia zillii* to the Orontes River and the introduction of *T. zillii* to a coastal stream in Syria. During an ichthyological survey of Syria in 2008, data concerning the actual distribution of introduced cichlids has been collected. The range expansion of the endemic Levantine cichlid *Tristramella simonis* which was believed to be restricted to the lakes Tiberias and Muzarib, after its disappearance from Lake Hula and the Damascus area, is especially remarkable.

MATERIAL AND METHODS

Voucher material is housed in the Senckenberg Research Institute and Natural History Museum Frankfurt (SMF). Species were identified according to Krupp and Schneider (1989). Due to the uncertain taxonomic situation in the genus *Tristramella* subspecies were ignored in the present work. Fish were sampled with electric fishing devices and castnets.



Figure 1. - *Tristramella simonis* (88 mm SL) caught at Qala'at al Jarras.

RESULTS

Tristramella simonis (Fig. 1) was found at five localities outside the known range (Fig. 2). In the Jordan River basin it was found in Dara'a reservoir (32°36'03"N-36°07'19"E; SMF 31140, 4 specimens) and a canal at Al Asha'ari (32°44'20"N-36°00'34"E; SMF 31141, 6 specimens). Dara'a reservoir is an artificial lake with steep shores, stony to muddy bottom, no submerged vegetation, and massively eutrophicated. The canal at Al Asha'ari is draining from a spring lake and is about four meters wide and two meters deep at the place where *T. simonis* was collected. The shores of the canal were vegetated with reed and the water in the canal was standing. Outside the Jordan River basin, *T. simonis* was found in the Nahr al Kabir (N) River and in a spring draining to the Orontes River. In the Nahr al Kabir (N) River, *T. simonis* was the only cichlid species present and it was found to be very abundant in the Mashqita reservoir (35°39'12"N-35°54'43"E) and near Safkoon (N35°39'22"-E35°59'50"; SMF 31143, ~100 specimens) upstream of the reservoir. Mashqita reservoir is similar to Dara'a reservoir, except for the less steep shores. The water of Nahr al Kabir near Safkoon was very turbid, almost stagnant with rocky bottom covered with soft mud. In the Orontes River drainage, it was found in a small canal draining the spring at Qala'at al Jarras (35°19'49"N-36°18'38"E; SMF 31142, 5 specimens) that was about two meters wide, one meter deep and vegetated with many submerged plants.

DISCUSSION

While Trewavas (1942) and Krupp and Schneider (1989) reported *T. simonis* only from lakes Tiberias, Hula, Muzarib and the Damascus area, the species actually has a much wider distribution

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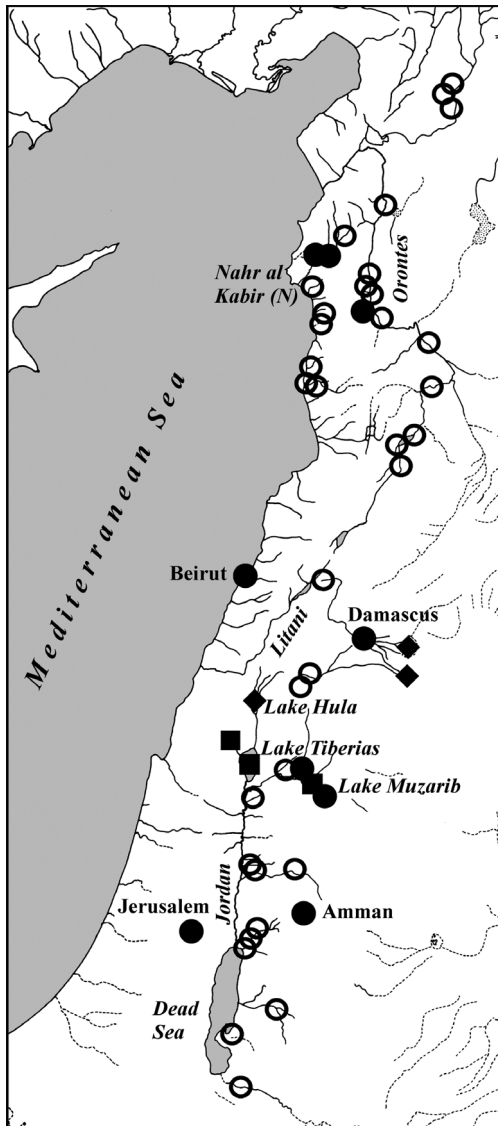


Figure 2. - Records of *T. simonis* in the Levant. ■: old records; ●: new records; ◆: records of today extirpated populations; ○: sampling sites where *T. simonis* was not found.

within its natural range. Its occurrence in the rivers Orontes and Nahr al Kabir (N) is interpreted as the result of introduction. Krupp (1985), who studied the freshwater fishes of the Levant intensively, did not report any *Tristramella* from both rivers. Mayyad Salloum (pers. comm., 12 Oct. 2008) stated, that mixed "Tilapias" have been transferred from Lake Tiberias to Orontes River in the late 1950s. He also reported the presence of *T. simonis* from all parts of the Orontes in Syria following that introduction. If this is correct, the presence of *T. simonis* in the Orontes might still have been very restricted in the 1980s and the species might have been overlooked by Krupp (1985). Later introductions from Lake Tiberias or Lake Muzarib are also possible. The range of *T. sacra* is restricted to Lake Tiberias (Krupp and Schneider, 1989).

Tristramella simonis seems to prefer standing waters of lakes, reservoirs and canals. Crivelli (2006) lists the species as "not threatened" and "abundant in Lake Tiberias". In contrast, all three other *Tristramella* species or subspecies recognized by Crivelli (2006) are listed as extinct or critically endangered. Considering the new records, it is obvious that *T. simonis* is well adapted to colonize artificial reservoirs. This is a promising feature in a freshwater fish, which is endemic to an area where most natural rivers are heavily impacted by the construction of reservoirs for irrigation and many other species are threatened by habitat degradation.

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REFERENCES

- BEN-TUVIA A., 1959. - The biology of the cichlid fishes of Lakes Tiberias and Huleh. *Bull. Res. Council. Isr., Sect B*, 8B (4): 153-188.
- CRIVELLI A.J., 2006. - *Tristramella simonis*. In: 2008 IUCN Red List of Threatened Species. IUCN. www.iucnredlist.org. Accessed 28 Oct. 2008.
- CUVIER G. & VALENCIENNES A., 1842. - Histoire naturelle des Poissons, Vol. 16. 472 p. Paris: P. Bertrand.
- GOREN M., 1974. - The freshwater fishes of Israel. *Isr. J. Zool.*, 23: 67-118.
- HECKEL J.J., 1843. - Ichthyologie. In: Reise in Griechenland, Unteregypen, im nördlichen Syrien und südöstlichen Kleinasien (Russegger J., ed.), 1(2): 991-1099.
- KORNFIELD I.L., RITTE U., RICHLER C. & WAHRMAN J., 1979. - Biochemical and cytological differentiation among cichlid fishes of the Sea of Galilee. *Evolution*, 33(1): 1-14.
- KRUPP F., 1985. - Systematik und Zoogeographie der Süßwasserfische des levantinischen Grabenbruchsystems und der Ostküste des Mittelmeers. Ph.D. Thesis, 215 p. Johannes Gutenberg Univ., Mainz.
- KRUPP F. & SCHNEIDER W., 1989. - The fishes of the Jordan River drainage basin and Azraq Oasis. *Fauna Saudi Arab.*, 10: 347-416.
- SNOOKS J. & TEUGELS G.G., 1991. - *Tristramella*. In: Check-List of the Freshwater Fishes of Africa, Vol. 4 (Daget J., Gosse J.P., Teugels G.G. & Thys van den Audenaerde D.F.E., eds), 740 p. Bruxelles: ISNB, Tervuren: MRAC, Paris: ORSTOM.
- TREWAVAS E., 1942. - The cichlid fishes of Syria and Palestine. *Ann. Mag. Nat. Hist.*, Ser. 11, 9: 526-536.
- TREWAVAS E., 1983. - Tilapiine Fishes of the Genera *Sarotherodon*, *Oreochromis* and *Danakilia*. 583 p. London: BMNH.

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